SECTION 4

305(b) CONTENTS — PART III: SURFACE WATER ASSESSMENT

Chapter One: Current Surface Water Monitoring Program

To provide a perspective on their activities to evaluate water quality, States must describe their monitoring programs and briefly discuss any changes in program emphasis that are planned or have taken place since the last report. Of particular interest this cycle are any changes resulting from a shift to basinwide or watershed planning, rotating basin surveys, or probability-based monitoring.

The description of State monitoring programs should include the basic program components that follow, with references to other documents including approved quality assurance program plans. The following are excerpted from Monitoring Program Work Plan elements in Section 106 Monitoring Guidance to the States (Appendix K of the *Guidelines Supplement*), first issued by EPA in 1994, which is in turn based on the ITFM framework for water quality monitoring. States could extract information from existing documents such as basin plans, Performance Partnership Agreements or 106 work plans to prepare this section of the 305(b) report.

- Purpose of monitoring program
  - goals
  - use of data quality objectives
  - geographic areas targeting for monitoring
  - environmental indicators
  - use of reference conditions

- Coordination/collaboration
  - other agencies or groups with similar monitoring goals or information
  - how such information is used

- Networks and Programs (for each include objectives, design methodology, number of sites, sampling methods, sampling frequency, parameters)
  - Fixed-station networks
  - Intensive surveys including rotating basin surveys
  - Probability-based surveys
  - Toxics monitoring programs
  - Biological monitoring programs
  - Fish tissue, sediment, and shellfish monitoring programs.

- Laboratory analytical support
  - Laboratories used
  - Issues (e.g., capacity, methods)

- Quality assurance/quality control program (brief description)

- Approach for data storage, management and sharing

- Training and support for volunteer monitoring
  - status of State-coordinated volunteer monitoring program, if any
  - use of volunteer monitoring data in report
  - source of volunteer monitoring data used
  - type of volunteer monitoring data used

- Data interpretation and communication
  - status of the State's WBS or equivalent system
  - status of georeferencing waterbodies to WBS
  - efforts to make reports accessible

- Program evaluation
  - updates of monitoring strategy and QA plans
  - effectiveness in meeting program objectives
  - changes needed to evaluate new problems

States should include maps of fixed-station monitoring sites and other key monitoring sites and networks. These may be river basin maps from basin management plans or reports.

States should also discuss any plans to use data generated by Federal agencies such as EPA's Environmental Monitoring and Assessment Program (EMAP), USGS's NAWQA and NASQAN programs, or the National Oceanic and Atmospheric Administration’s (NOAA's) Status and Trends Program. Finally, States should identify any monitoring and/or data management tools needed to improve their ability to assess the quality of their waters and to increase the percentage of waters assessed.

Examples of such needs are data systems, training, or technical assistance for new monitoring protocols.

Chapter Two: Plan for Achieving Comprehensive Assessments

EPA has established a long-term goal of comprehensively characterizing surface and ground waters of each State (in keeping with the State's rotating basin approach if applicable) using a variety of techniques targeted to the condition of, and goals for, the waters. These techniques may include traditional targeted monitoring and probability-based designs. To help ensure national progress toward this goal, each State is encouraged to include in its 1998 305(b) report a plan and maps showing how they will achieve comprehensive monitoring and assessment of its waters. EPA believes that most of the work involved in developing such a plan will have already been performed in the development of the State's Section 106 Monitoring Strategy. In cases where the existing strategy does not already include comprehensive assessment of State waters, States are encouraged to revise the strategy to achieve this goal. **At a minimum, States should attach a copy of their current Section 106 Monitoring Strategy to the 1998 305(b) report.**

Prior to preparing this plan, EPA recommends that State monitoring and 305(b) staff hold a series of discussions with their EPA Regional Monitoring and TMDL Coordinators regarding ways to adapt their current monitoring program to achieve comprehensive monitoring. EPA can also provide technical support for designing probability-based monitoring networks to supplement existing networks. For example, EPA's EMAP staff have extensive experience designing and conducting probability-based monitoring. The EPA contact is shown on page ii.

See Section 2 and Appendix I of the *Guidelines Supplement* for more information about different monitoring designs for achieving comprehensive assessments. Among the possible approaches for a State to achieve comprehensive assessments based on monitoring are:

- All sizes and categories of streams (or lakes or estuaries) are sampled based on probabilistic monitoring designs. This type of design can be incorporated into a State's rotating basin monitoring program.

- Certain categories of waterbodies are sampled based on probability-based designs, while other categories are sampled with historical fixed station networks or other non-random designs.

As an example of the latter approach, a State might monitor its headwater streams using a probability-based design, since the number of small streams makes monitoring each one impractical. The State could monitor large streams and rivers using a more traditional network. The probability network would allow the State to draw valid inferences about

the degree of use support in its headwater streams, while the remaining streams and rivers would be monitored through proper spacing of monitoring sites. Similarly, small lakes could be monitored probabilistically and larger lakes using other designs.

Contents of the plan should include:

- How the State plans to investigate its options for comprehensive monitoring and assessment—i.e., the process the State will follow for selecting a valid, cost-effective program including existing networks to comprehensively determine designated use support and biological integrity statewide.

- If known, a description of any proposed future monitoring networks, including the types of information listed above under Chapter 1: Current Surface Water Monitoring Program; several States have begun using a combination of traditional and probability-based monitoring, and may be able to prepare this part of the plan for their 1998 305(b) reports.

- Maps showing the schedule by watershed or basin for introducing the necessary monitoring changes to achieve comprehensive monitoring.

- A plan for georeferencing all waterbodies (streams, lakes, estuaries and ocean shorelines) to RF3. If a State wishes to use a hydrographic coverage other than RF3 with similar or better resolution, the plan should address how this will be achieved and how it will be linked to RF3 to enable national coverage. States that have already georeferenced their waterbodies should simply document the process and the hydrographic coverage they used. See page ii for the EPA national contact for georeferencing waterbodies to RF3.

Chapter Three: Assessment Methodology and Summary Data

Assessment Methodology

States should provide information on the methods they used to assess data for determining use support status. This documentation should include types of information used, data sources, assessment confidence levels, and identification of organizational units that make use support determinations. The decision process for assigning waterbodies to different use support categories (fully supporting, partially supporting, etc.) should be explained in detail. The use of flow charts of the decision process is recommended. Appendix J of the *Guidelines Supplement* includes example assessment methodologies with the appropriate level of

detail. States not using the WBS should describe the databases they use to track and report assessments.

States should highlight changes in assessment methodology since the last 305(b) assessment. States should also explain any biases incorporated into their assessments (e.g., monitoring concentrated around areas of known contamination; small percentage of waters assessed; limited monitoring of waterbodies affected by nonpoint sources). Also, EPA asks States to discuss how they determine the extent of a waterbody represented by a single assessment or monitoring site (see also Section 2.1 of the *Guidelines Supplement*).

Approximately half of the States have adopted or are considering a statewide basin management approach in which they assess all basins or watersheds at regular intervals (typically three to five years). EPA encourages this approach and requests that States report the status of their efforts and any special considerations in making assessments using rotating basin data. A State using rotating basin surveys as part of a statewide basin management approach should report the number of years required to assess all basins (i.e., the entire State) and the percentage of total State waters actually assessed during this cycle. States should also report basinwide plans by name and year completed or expected to be completed.

To achieve more comprehensive coverage of its waters, a State could assess a statistically valid subset of such waterbodies and intermittent streams and infer the condition of the whole. See Section 4.2 of the *Guidelines Supplement* for more information about probability-based monitoring.

Finally, if water quality trends are reported, the State should include a description of its methods and software.

Maps

EPA and many States represented on the 305(b) Consistency Workgroup are committed to improving the usefulness of water quality data through spatial analysis. For example, maps displaying designated use support information for rivers, lakes, estuaries, oceans, Great Lakes, and wetlands are very useful in showing the extent of impairment of designated uses. Maps can also illustrate the distribution of waters impaired by specific sources or causes/stressors, as well as the locations of monitoring sites, dischargers, land-disturbing activities, and threatened wetlands. Figures 4-1 and 4-2 are watershed-scale maps that illustrate these types of features. These are black and white copies of the original color maps.

For examples of color maps from 1996 State 305(b) reports, States may contact the National

Figures 4-1 and 4-2

figures not available in electronic form

305(b) Coordinator. EPA highly recommends the use of color maps for displaying assessment results.

States with GISs can generate such maps by georeferencing their waterbody-specific assessment data (e.g., WBS data) to the Reach File Version 3 (RF3). To do this, the State assigns locational coordinates to each waterbody. RF3 is EPA's national hydrologic database; RF3 allows georeferenced water data to be displayed spatially and overlaid with other data in a GIS. EPA is providing technical support for this process to States.

To move toward greater use of spatial analysis, the 305(b) Workgroup made the following recommendations:

- EPA should continue to encourage States to georeference their waterbodies to RF3 and provide technical support for this effort.

- Each State should have a base-level computer system to implement software such as ARC/INFO, ArcView, and the Waterbody System.

- Each State should seek technical input from EPA before reach indexing to ensure Regional and national compatibility and to take advantage of lessons learned in other States. The EPA contact for reach indexing is shown on page ii.

For other information about the above items, contact the National 305(b) Coordinator.

EPA recognizes that some State 305(b) programs may not have access to a GIS for the 1998 report; these States are asked to provide maps in whatever form they commonly use for other documents. For example, each State has base maps of hydrography that can be used to prepare use support maps. Using waterbody-specific assessment data from WBS or other systems, States should prepare maps showing degree of use support for each use (aquatic life, drinking water, etc.). Similar maps should display the major causes and sources of impairment. These maps can be at the State level or basin scale. Basin-scale maps may be available from basin plans under a statewide basin management approach.

Section 303(d) Waters

Each State must transmit a Section 303(d) list to EPA biennially, with the next update due by April 1, 1998. Because the date for State submission of the 305(b) reports is the same date as submission of State Section

303(d) lists, States may want to submit their 303(d) lists with their 305(b) reports. However, since the statutory and regulatory requirements differ for the 303(d) list and the 305(b) report, States should submit each as a separate document.

In any case, each State is expected to use existing and readily available information to determine which waterbodies should be on the Section 303(d) list. A number of sources can be used to assist in making this determination, including the State's assessment database and most recent 305(b) report. A deliberative analysis of existing information, including best professional judgment, should be conducted to evaluate if the information is adequate to support inclusion of a waterbody on the Section 303(d) list.

Section 303(d) of the CWA requires States to identify and establish a priority ranking for waters that do not or are not expected to achieve or maintain water quality standards with existing or anticipated required controls. States are required to establish TMDLs for such waters in accordance with such priority ranking. If EPA disapproves a State list, EPA is required to identify waters and assign a priority ranking for TMDL development.

For guidance regarding State and EPA responsibilities under Section 303(d) and a list of EPA Regional TMDL Coordinators, see Appendix K to the *Guidelines Supplement*. For more information, contact the EPA Watershed Branch (202) 260-7074.

Table 4-1 is included here to show 305(b) staff the types of information that States may include on their 303(d) lists. Note that the data field WBID (waterbody identification number) in Table 4-1 will help EPA and the State manage both 305(b) and 303(d) data in the future by providing a common data element for cross-referencing data. States have the option to use WBS to track this information. WBS contains a TMDL list module with cause and source codes and other fields from Table 4-1.

Chapter Four: Rivers and Streams Water Quality Assessment

Designated Use Support

The State should prepare a table summarizing the extent of impairment of designated use support (Table 4-2). States with statewide or regional fish consumption advisories for mercury are asked to provide two versions of Table 4-2, one version including impairment due to these advisories and one version excluding such impairment. Presenting separate tables

helps clarify the extent of mercury advisory problems versus other more tractable problems in the State.

Table 4-1. Types of Information that States May include on Their 303(d) Lists (optional)[a]

WBID	WB Name and Descrip-tion[b]	Size of WB Affected	Specific Pollutant or Stressor[b]	Probable Source(s) of Pollutant	Priority Ranking for TMDL Development[b]	Targeted for TMDL[b] (Yes/No)	No. of NPDES Permit Renewals 4/96-4/98	No. of NPS Projects in Watershed

[a] This table is presented for information purposes for State 305(b) staff to track and manage both 305(b) and 303(d) information. It does not create new requirements, nor does it supercede any existing statutory or regulatory requirements.

[b] Required information under 303(d) regulations and statute.

WB = Waterbody
WBID = Waterbody identification number from 305(b) assessment database
Targeted = Waterbody has been identified for TMDL development during the next two-year cycle (e.g., April 1998 to April 2000).
NPDES = National Pollutant Discharge Elimination System.

Table 4-2. Summary of Fully Supporting, Threatened, and Impaired Waters[a]

Degree of Use Support	Assessment Category		Total Assessed Size[b]
	Evaluated[b]	Monitored[b]	
Size Fully Supporting All *Assessed* Uses			
Size Fully Supporting All *Assessed* Uses but Threatened for at Least One Use[c]			
Size Impaired for One or More Uses[d]			
Size Not Attainable for Any Use and Not Included in the Line Items Above			
TOTAL ASSESSED			

[a] See text regarding preparing two versions of this table if the State has a statewide or regional fish consumption advisory due to mercury.

[b] Report size in each category (rivers and streams reported in miles).

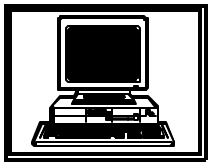
[c] ***Size threatened is a distinct category of waters and is not a subset of the size fully supporting use*** (see Section 1.2 of the *Guidelines Supplement*). It should be added into the totals entered in the bottom line.

[d] Impaired = Partially or not supporting a designated use.

The 1996 305(b) Consistency Workgroup recommended that overall use support no longer be a reporting requirement, as it masks the specific number of uses impaired. To retain summary information on the total condition and size of waters assessed, States should report the information in Table 4-2 for rivers and streams.

In addition, the State should prepare a table summarizing individual designated use support (Table 4-3). Table 4-3 lists specific designated uses and combines Clean Water Act goal reporting and designated use reporting into one table. The fishable goal of the Clean Water Act is reported under the fish consumption, shellfishing, and aquatic life support uses, and the swimmable goal is reported under the swimming and secondary contact uses.

In order for EPA to summarize use support at a national level, States must report waterbody sizes for the generalized use categories shown in Table 4-3 (fish consumption, shellfishing, etc.). More specific State uses may be itemized in the spaces provided at the bottom of the table, but must be consolidated into the eight general use categories to the extent possible. This consolidation should be based on the most sensitive State use within a generalized use (e.g., cold water fishery would be included in aquatic life use support for a trout stream).



Assessment Database Managers—Whether you use WBS or a customized system, to generate Table 4-2 accurately you may need to enter values for a summary of uses (formerly overall use, Code 01) at least for waterbodies having impairment of multiple individual uses. This is because of potential overlap of impairment. For example, if a stream waterbody has 5 miles of aquatic life use impairment and 2 miles of swimming use impairment, it could have from 5 to 7 miles of impairment. Note: if a State does not provide sizes for "summary of uses" Code 01 in its database, EPA will assume that the total size impaired for a waterbody equals the largest size impaired for any individual use.

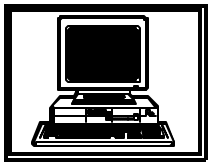
WBS treats the summary of uses/overall use Code 01 the same as individual use codes. You only need to provide data for this code if the waterbody has impairment of multiple individual uses. Contact WBS User Support for further information; see page ii for telephone number).

Several States separate CWA goals (fishable, swimmable) from State goals (aquatic life use support (ALUS), primary contact recreation, etc.). Therefore, States can also report on their own individual designated uses. **However, to ensure that EPA correctly interprets their summary data, States should include in Table 4-3 values for the national designated use categories (aquatic life, fish consumption, shellfishing, swimming, secondary contact, drinking water, agricultural, cultural/ceremonial) whether or not they choose to include State-specific uses.**

Causes/Stressors and Sources of Impairment of Designated Uses

For those waters assessed that are not fully supporting their designated uses (i.e., impaired waters), States should provide the following information to illustrate the causes/stressors and sources of use impairment statewide.

States may also wish to prepare similar tabular information for waters that fully support uses but are threatened.



Assessment Database Managers—Whether you use WBS or a customized system, EPA needs your cooperation to accurately interpret your use support data. For each waterbody, please fill in the size fields for the any of the following national use support categories that apply:

- Aquatic Life Use
- Fish Consumption Use
- Shellfishing Use
- Swimming Use
- Secondary Contact Use
- Drinking Water Use

Even if you have State-specific subcategories for these uses, EPA also needs sizes for the above national uses. Also, please complete the Assessment Category field to distinguish evaluated (E) from monitored (M) assessments.

Note to WBS Users—If you follow the above instructions, WBS can be used to generate Tables 4-2 and 4-3.

TABLE 4-3 (see last page of this file)

Relative Assessment of Causes/Stressors —

Causes/stressors are those pollutants or other stressors (e.g., flow and other habitat alterations, presence of exotic species) that contribute to the actual or threatened impairment of designated uses in a waterbody. In Table 4-4, States should provide the total size (in miles) of rivers and streams affected by each cause/stressor category. **A waterbody may be affected by several different causes/stressors and its size should be counted in each relevant cause/stressor category.** See Section 1 of the *Guidelines Supplement* for new discussion of the terms Major/Moderate/Minor and a list of cause/stressor codes for the WBS. **See the footnote to Table 4-4 regarding the importance of leaving no blanks in Table 4-4; to avoid confusion in national summaries, please use asterisks, dashes, or zeros as described in the footnote.**

The relative magnitude of causes/stressors does not necessarily correspond to degree of use support. For example, a waterbody can have three causes/stressors labeled as moderate, but have sufficient impairment from these multiple causes/stressors to be assessed as not supporting.

Most of the causes/stressors in Table 4-4 are self-explanatory but some warrant clarification:

- *Siltation* refers to the deposition of sediment on the bottom of a waterbody causing such impacts as smothering benthic habitat in streams or filling in of lakes.

- *Thermal modification* generally involves the heating of receiving waters by point sources (e.g., plant cooling water) or nonpoint sources (e.g., runoff from pavement or elimination of bank shading).

- *Flow alteration* refers to frequent changes in flow or chronic reductions in flow that impact aquatic life (e.g., as flow-regulated rivers or a stream with excessive irrigation withdrawals).

- *Other habitat* alterations may include removal of woody debris or cobbles from a stream.

- *Exotic species* are introduced plants and animals (e.g., Eurasian milfoil, zebra mussels, grass carp) that interfere with natural fisheries, endangered species, or other components of the ecosystem.

Table 4-4. Total Sizes of Waters Impaired by Various Cause/Stressor Categories

Type of Waterbody: Rivers and Streams (Reported in Miles)[a]

Cause/Stressor Category	Size of Waters by Contribution to Impairment[a,b]	
	Major[c]	Moderate/Minor[c]
Cause/Stressor unknown		
Unknown toxicity		
Pesticides		
Priority organics		
Nonpriority organics		
PCBs		
Dioxins		
Metals		
Ammonia		
Cyanide		
Sulfates		
Chlorine		
Other inorganics		
Nutrients		
pH		
Siltation		
Organic enrichment/low DO		
Salinity/TDS/chlorides		
Thermal modifications		
Flow alterations		
Other habitat alterations		
Pathogen indicators		
Radiation		
Oil and grease		
Taste and odor		
Suspended solids		
Noxious aquatic plants (macrophytes)		
Excessive algal growth		
Total toxics		
Turbidity		
Exotic species		
Other (specify)		

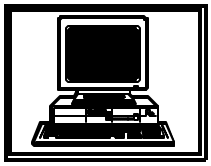
(see footnotes on next page)

[a] Reported in total size (rivers and streams reported in miles). When preparing this table for other waterbody types, use the following units: lakes, acres; estuaries, square miles; coastal waters and Great Lakes, shore miles; wetlands, acres.

[b] In order for EPA to summarize data from over 56 305(b) reports, please leave no blanks in this table. Instead use the following conventions:
asterisk (*) = category not applicable
dash (-) = category applicable no data available
zero (0) = category applicable, but size of waters in the category is zero.

[c] Note that multiple moderate/minor causes/stressors can additively result in nonsupport. See discussion in Section 1.9 of the *Guidelines Supplement*.

How to Avoid Double-counting Causes/Stressors



Assessment Database Managers—WBS and other State assessment databases can generate Table 4-4 from waterbody-specific information. To do so, users must complete Cause Size and Cause Magnitude fields for each waterbody. Table 1-2 of the *Guidelines Supplement* lists the national cause/stressor codes.

WBS Users—States can also add their own codes to WBS to track additional causes/stressors. For 1997, EPA has added codes under Code 500--Metals, to track specific metals such as mercury and copper. If a State chooses to add cause/stressor codes to WBS, or to use the new subcategory codes, the data system can still be used to generate Table 4-5. **To generate this table, enter a total size for each major category of causes/stressors (the categories in Table 1-2 of the *Guidelines Supplement* such as 0500—Metals or 0200—Pesticides) for each waterbody**. This is necessary because there may be overlap among the subcategories of causes. For example, 5 miles of a waterbody may be impacted by zinc and 7 miles by copper, but the total size impacted by "metals" may be only 10 miles due to partial overlap of the specific causes. Simple addition of the sizes impacted by the specific causes (i.e., 12 miles) would not be accurate in this case.

Non-WBS Users—Your customized database may also require a total size for each major cause/stressor in order to avoid double counting. See diagram below. For more information, contact WBS User Support at the number on page ii.

[diagram not available in electronic form]

Relative Assessment of Sources —

Sources are the facilities or activities that contribute pollutants or stressors, resulting in impairment of designated uses in a waterbody. Data on sources are tracked for each impaired waterbody in the State (e.g., using WBS). Appendix L of the *Guidelines Supplement* lists types of information useful in determining sources of water quality impairment.

States should provide the total size (in miles) of rivers and streams affected by each category of source, including the size with overall point and nonpoint source impacts (Table 4-5). **A waterbody may be affected by several sources of pollution and the appropriate size should be counted in each relevant source category.**

Table 4-5 shows the minimum level of detail regarding source categories. States are urged to include the more detailed list of subcategories, since this will increase the overall usefulness of the report and of the State's 305(b) assessment database. **However, States must always provide aggregate source category totals for the source categories shown in Table 4-5**. The cell entitled "Other" in Table 4-5 should actually be a State's list of specific additional sources not included in the preceding categories.

The Natural Sources category should be reserved for waterbodies impaired due to naturally occurring (nonanthropogenic) conditions. **See Section 1.7 of the *Guidelines Supplement* for a discussion of appropriate uses of this source category.**

For technical or economic reasons, impairment by a natural source may be beyond a State's capability to correct. A use attainability analysis may demonstrate that a use is not attainable or that another use is appropriate for a waterbody.

Cause/Source Linkage —

States are asked to link causes/stressors with sources for a waterbody in their assessment databases whenever possible (see Section 1.8 of the *Guidelines Supplement*). A special cause/source link field is provided in WBS for this purpose. Linked cause/source data are very important for answering State resource management questions. For example, the question "Which waterbodies are impaired due to nutrients from agricultural runoff?" cannot be answered if the cause/source link is not used.

Table 4-5. Total Sizes of Waters Impaired by Various Source Categories

Type of Waterbody: Rivers and Streams (reported in miles)[a]

Source Category	Contribution to Impairment[b]	
	Major[a]	Moderate/Minor[a]
Industrial Point Sources		
Municipal Point Sources		
Combined Sewer Overflows		
Collection System Failure		
Domestic Wastewater Lagoon		
Agriculture		
Crop-related sources		
Grazing-related sources		
Intensive Animal Feeding Operations		
Silviculture		
Construction		
Urban Runoff/Storm Sewers		
Resource Extraction		
Land Disposal		
Hydromodification		
Habitat Modification (non-hydromod)		
Marinas and Recreational Boating		
Erosion from Derelict Land		
Atmospheric Deposition		
Waste Storage/Storage Tank Leaks		
Leaking Underground Storage Tanks		
Highway Maintenance and Runoff		
Spills (Accidental)		
Contaminated Sediments[c]		
Debris and Bottom Deposits		
Internal Nutrient Cycling (primarily lakes)		
Sediment Resuspension		
Natural Sources		
Recreational and Tourism Activities		
Salt Storage Sites		
Groundwater Loadings		
Groundwater Withdrawal		
Other[d]		
Unknown Source		
Sources Outside State Jurisdiction/borders		

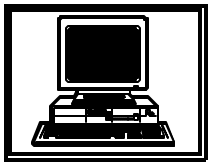
[a] Reported in total size (rivers and streams reported in miles).
In order for EPA to summarize data from over 56 305(b) reports, please leave no blanks in this table. Instead use the following conventions:

asterisk (*) = category not applicable
dash (-) = category applicable no data available
zero (0) = category applicable, but size of waters in the category is zero

[b] Note that multiple moderate/minor sources can additively result in nonsupport. See Section 1.9 of the *Guidelines Supplement*.

[c] Bottom sediments contaminated with toxic or nontoxic pollutants; includes historical contamination from sources that are no longer actively discharging. Examples of contaminants are PCBs, metals, nutrients (common in lakes with phosphorus recycling problems), and sludge deposits. Please indicate the screening levels or criteria used (e.g., EPA sediment quality criteria; NOAA effects range-medium [ER-M] values).

[d] List additional sources known to affect waters of the State.



How to Avoid Double-counting Sources

Assessment Database Managers—Many State assessment databases track and report on a detailed list of source subcategories under some of the general categories such as Agriculture. The full list of source categories is given in Section 1.7 of the *Guidelines Supplement*.

To use these databases, including the WBS, to generate Table 4-5 from waterbody-specific information, users must complete Source Size and Source Magnitude fields for each waterbody. **If source subcategories are used, users must always enter a size for each appropriate general source category (such as 1000—Agriculture). WBS and customized State databases may not accurately calculate the size of waters affected by Agriculture from the agriculture subcategories (Table 1-3 of the *Guidelines Supplement*) because the sizes of waters affected by each subcategory may overlap and not be additive.** For example, consider a waterbody with 5 miles affected by croplands, 7 miles affected by pastureland, but a total of 10 miles affected by the **Agriculture** general category because the two subcategories of sources overlap. The following sizes should be stored in the State's assessment database.

Code 1000 **Agriculture** (general category)	10 miles
Code 1050 Crop related sources	5 miles
Code 1350 Grazing-related sources	7 miles

To be able to generate Table 4-5 using the WBS and most customized State databases, total mileage must be entered for each general source category affecting a waterbody (i.e., for the categories in Table 4-5) whether or not source subcategories are also entered.

diagram not available in electronic form

Chapter Five: Lakes Water Quality Assessment

Summary Statistics

States should report summary statistics for use support and for causes and sources of impairment in lakes. The format should be similar to that used for rivers and streams. That is, Tables 4-2 through 4-5 should be developed for all assessed lakes in the State, including significant publicly owned lakes under Section 314 as well as any other lakes assessed by the State. The reporting unit for lakes in these tables is acres.

The remainder of this chapter deals with reporting requirements under Section 314. The focus is on significant publicly owned lakes. EPA asks States to report on all lakes using Tables 4-2 through 4-5 but only significant publicly-owned lakes in Tables 4-6 through 4-11. Under the abbreviated hard-copy reporting option, a State need not repeat Tables 4-6 through 4-11 biennially unless it has information indicating that conditions have changed. If the State has information that the conditions in its 314 lakes are changing more frequently, than these summary tables should be reported biennially or all required 314 lake-specific data reported in electronic updates. Such electronic updates would satisfy the Section 314 biennial reporting requirement.

Clean Lakes Program

Section 314(a)(2) of the CWA, as amended by the Water Quality Act of 1987, requires the States to submit an assessment of their lake water quality as part of their 305(b) report. The specific elements of the assessment, as outlined in Section 314(a)(1)(A-F), constitute the minimal requirements for approval.

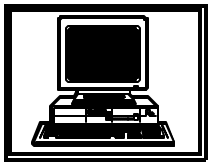
> Although all lakes should be included in the summary tables described in the "Summary Statistics" section above (i.e., Tables 4-2 through 4-5), the reporting requirements described below are specific to the Clean Lakes Program. Data in Tables 4-6 through 4-11 should be for significant publicly owned lakes only. If States wish to report such information for private lakes, they may do so using similar tables. However, totals for Section 314 significant publicly owned lakes must always be distinguished from private lakes.

For purposes of Clean Lakes Program reporting, this section of the Lake Water Quality Assessment chapter should focus on publicly owned public access lakes that the State considers significant (as defined by the State). Therefore, the term “lake” in this section will refer to "significant publicly owned lakes/reservoirs/ponds."

Table 4-6. Trophic Status of Significant Publicly Owned Lakes

	Number of Lakes	Acreage of Lakes
Total		
Assessed		
Oligotrophic		
Mesotrophic		
Eutrophic		
Hypereutrophic		
Dystrophic		
Unknown		

WBS Users—WBS can generate lakes summary Tables 4-6 through 4-11 if you enter the required data for individual lake waterbodies. One key data element is the "significant publicly owned lake" field on WBS Screen 1. For further information, see the WBS Users Guide or contact WBS User Support at the telephone number on page ii.



States should include the specific assessment elements as outlined in Section 314(a)(1)(A-F) as part of their 305(b) reports (see Appendix A of the *Guidelines Supplement*).

(NOTE: If a State chooses to submit a "lake water quality" report in addition to a 305(b) report, the State should ensure that the information required specifically by Section 314(a) is included in the 305(b) report as well.)

The Clean Lakes section of the report should reflect the status of lake water quality in the State, restoration/protection efforts, and trends in lake water quality. The text of this chapter should include narrative discussions and summary information that should be supported by

specific information on each lake. Lake-specific information may be submitted by computer disk or a hard-copy appendix to the State report.

Each State should report the following information:

Background --

- The State's definition of "significant" as it relates to the purposes of this assessment. The definition must consider public interest and use.

- Total number of significant publicly owned lakes and number of acres of significant publicly owned lakes in the State.

- Any other background information the State considers relevant to this discussion.

Trophic Status [314(a)(1)(A)] -- Table 4-6

- The total number of lakes and lake acres in each trophic class (dystrophic, oligotrophic, mesotrophic, eutrophic, hypertrophic). (Note: Table 4-6 is a summary, not a list of all lakes.)

- A discussion of the approach used to determine trophic status and why it was selected.

Control Methods [314(a)(1)(B)]

- A description of procedures, processes, and methods to control sources of pollution to lakes including

  - point and nonpoint source controls

  - land use ordinances and regulations designed to protect lake water quality.

A general description of the State pollution control programs as they relate to the protection of lake water quality. In particular, discuss the State lake management program, including related activities under the nonpoint source, point source, wetlands, and emissions control programs, and any other relevant program activities. Also, describe the State's water quality standards that are applicable to lakes.

Restoration/Protection Efforts [314(a)(1)(C)] -- Tables 4-7 and 4-8

- A general description of the State's plans to restore and/or protect the quality of its lakes. This is the State's management plan for its lakes program and should focus on the cooperative working relationships

Table 4-7. Lake Rehabilitation Techniques

*Rehabilitation Technique	Number of Lakes Where Technique Has Been Used	Acres of Lakes Where Technique Has Been Used
In-lake Treatments		
Phosphorus Precipitation/Inactivation		
Sediment Removal/Dredging		
Artificial Circulation to Increase Oxygen		
Aquatic Macrophyte Harvesting		
Application of Aquatic Plant Herbicides		
Drawdown to Desiccate and/or Remove Macrophytes		
Hypolimnetic Aeration		
Sediment Oxidation		
Hypolimnetic Withdrawal of Low DO Water		
Dilution/Flushing		
Shading/Sediment Covers or Barriers		
Destratification		
Sand or Other Filters Used to Clarify Water		
Food Chain Manipulation		
Biological Controls		
Other In-lake Treatment (Specify)		
Watershed Treatments		
Sediment Traps/Detention Basins		
Shoreline Erosion Controls/Bank Stabilization		
Diversion of Nutrient Rich In-flow		
Conservation Tillage Used		
Integrated Pest Management Practices Applied		
Animal Waste Management Practices Installed		
Porous Pavement Used		
Redesign of Streets/Parking Lots to Reduce Runoff		
Road or Skid Trail Management		
Land Surface Roughening for Erosion Control		

Table 4-7. Lake Rehabilitation Techniques (continued)

*Rehabilitation Technique	Number of Lakes Where Technique Has Been Used	Acres of Lakes Where Technique Has Been Used
Riprapping Installed		
Unspecified Type of Best Management Practice Installed		
Other Watershed Controls (Specify)		
Other Lake Protection/Restoration Controls		
Local Lake Management Program In-place		
Public Information/Education Program/Activities		
Local Ordinances/Zoning/Regulations to Protect Lake		
Point Source Controls		
Other (Specify)		

Table 4-8. List of Clean Lakes Program Projects Active During 1996 – 1998 Reporting Period

Name of Project	Type of Project[a]	Federal Funding ($)	Problems Addressed	Management Measures Proposed or Undertaken[b]	Completed? (Yes/No)

[a] Lake Water Quality Assessment (LWQA), Phase I, Phase II, or Phase III.
[b] Refer to Table 4-7 for a partial list of management/rehabilitation measures.

among Federal, State, Tribal, and local agencies concerned with lake protection, restoration, and management.

- A description and tabulation of techniques to restore lake water quality. Table 4-7 provides a list of lake rehabilitation techniques as well as a format for reporting the number of lakes and the acreage of lakes where each technique has been applied. The WBS can be used to generate Table 4-7 if users enter data in the following WBS data fields for each individual lake waterbody: the Control Measure field, the Restoration Measure field, and the Significant Publicly Owned Lake field. Note that the WBS allows users to create additional control and restoration codes as needed.

- A description and tabulation of Lake Water Quality Assessment grants and Phase I, Phase II, and Phase III Clean Lakes projects funded under Section 314 or Section 319 that have been undertaken and/or completed. Table 4-8 shows one way to present this information. State Clean Lakes records, EPA's Clean Lakes Program Management System (CLPMS), or the 319 Grants Reporting and Tracking System (GRTS) can provide the information needed for Table 4-8. For more information, contact the EPA Watershed Branch staff at (202) 260-7107.

Note that in recent years EPA has not requested funding for Section 314 but rather has encouraged States to use Section 319 to support lakes work that was previously supported under Section 314. Thus, Phase I, II, and III projects, and lake water quality assessments which were previously done under the Section 314 Clean Lakes Program are eligible for funding under Section 319, with some caveats. In November 1996 EPA issued "Questions and Answers on the Relationship Between the Section 319 Nonpoint Source Program and the Section 314 Clean Lakes Program" to clarify questions regarding funding of lake activities under Section 319 (see Appendix M of the *Guidelines Supplement*).

Impaired and Threatened Lakes [314(a)(1)(E)] --

- Provide summary tables on designated use support and causes and sources of nonsupport in lakes similar to Tables 4-3 through 4-5. Include information on threatened lakes, if available.

- A discussion of State water quality standards as they apply to lakes. If water quality standards have not been established for lakes, the measure used to determine impairment or threatened status should be identified.

Acid Effects on Lakes [314(a)(1)(D); 314(a)(1)(E)] -- Tables 4-9 and 4-10

- The number of lakes and lake acres that have been assessed for high acidity. If information is available, discuss the nature and extent of toxic substances mobilization (release from sediment to water) as a result of high acidity. Table 4-9 shows one way to present this information.

- The number of lakes and lake acres affected by high acidity. Indicate the measure (pH, acid-neutralizing capacity) used to determine acidic condition and the level at which the State defines "affected."

- A discussion of the specific sources of acidity, with estimates of the number of affected lake acres attributed to each source of acidity. Table 4-10 shows one way to present the information. WBS will generate Tables 4-9 and 4-10 if the required data are entered (see *WBS User's Guide*).

- A description of the methods and procedures used to mitigate the harmful effects of high acidity, including innovative methods of neutralizing and restoring the buffering capacity of lakes and methods of removing from lakes toxic metals and other toxic substances mobilized by high acidity.

Table 4-9. Acid Effects on Lakes

	Number of Lakes	Acreage of Lakes
Assessed for Acidity		
Impacted by High Acidity		
Vulnerable to Acidity		

Table 4-10. Sources of High Acidity in Lakes

Source	Number of Lakes Impacted	Acreage of Lakes Impacted
Acid Deposition		
Acid Mine Drainage		
Natural Sources		

Other (list)		

NOTE: See Section 1.7 of the *Guidelines Supplement* for description of natural sources.

Toxic Effects on Lakes [314(a)(1)(E); 314(a)(1)(F)] --

- If not provided in Public Health/Aquatic Life Concerns chapter (Chapter 7), the number of lakes and number of lake acres monitored for toxicants and those with elevated levels of toxic pollutants.

- A discussion of the sources of toxic pollutants in lakes, with estimates of the number of affected lake acres attributed to each source of toxic pollutants.

Trends in Lake Water Quality [314(a)(1)(F)] -- Table 4-11

- A general discussion of apparent lake water quality trends. Include the total number of lakes and lake acres in each trend category (improved, degraded, stable or unknown). Table 4-11 shows EPA's preferred way to present this information.

- A discussion of how apparent trends were determined (e.g., changes in use support status, statistical trend analysis of water quality parameters). Indicate the time frame of analysis. If sufficient data are available, States should report on trends in trophic status, trends in toxic pollutants or their effects, and trends in acidity or its effects. For a lake, the trend in trophic status may be more important than the trophic status itself.

Note: Technical guidance for analyzing trends is available—*Statistical Methods for the Analysis of Lake Water Quality Trends*, EPA 841-R-93-003 (U.S. EPA 1993). Contact the Watershed Branch at (202) 260-7107 for a copy.

Table 4-11. Trends in Significant Public Lakes

	Number of Lakes	Acreage of Lakes
Assessed for Trends		
Improving		
Stable		
Degrading		

Trend Unknown		

Chapter Six: Estuary and Coastal Assessment

Summary Statistics (including Great Lakes shoreline)

States should report summary statistics for use support and causes and sources of impairment in estuaries, coastal waters, and the Great Lakes. The format should be similar to Tables 4-2 through 4-5 for all estuaries in the State. The reporting unit for estuaries in these tables is square miles. Similarly, separate tables should be prepared for coastal waters and the Great Lakes using shoreline miles as the size unit. WBS includes a Great Lakes waterbody category with size units of (shoreline) miles. For Great Lakes embayments, States may use the "estuary" waterbody category if they wish to report impacts in areal units (square miles).

Special Topics

As part of the national initiative to increase understanding of estuarine and near-coastal waters and the Great Lakes and to better direct pollution control efforts in these waters, EPA asks the States to provide information on five overall topics: eutrophication, habitat modification including riparian and shoreline conditions such as erosion, changes in living resources, toxic contamination, and pathogen contamination.

All States are asked to collect and provide coastal, estuary, and Great Lakes information as appropriate. Although EPA understands that these data may not be readily available in every coastal State, efforts to produce this information will result in a broader understanding of our coastal and estuarine resources. Those areas for which no data are currently available should be clearly identified by the States. Also, States are encouraged to discuss their methods for collecting the information and how these methods may limit use of the data.

In this chapter (Chapter 6), States should report further information on estuaries, coastal waters, and Great Lakes including:

- **A case study** from at least one estuary/coastal/Great Lakes area. States are encouraged to describe problems and challenges, not just "success stories."

- **Information on eutrophication** including:

  - occurrence, extent, and severity of hypoxia and anoxia (low or complete absence of dissolved oxygen);

- occurrence, extent, and severity of algal blooms possibly related to pollution; and

- estimated nutrient loadings broken out by point sources, combined sewer overflows, and nonpoint sources.

C Information on projected land use changes and their potential impact on water quality, habitat, and living resources.

C **Information on habitat modification** including the status and trends in acreage of submerged aquatic vegetation; acreage of tidal wetlands; miles of diked, bulkheaded, or stabilized shoreline; extent of riparian and shoreline conditions (e.g., erosion); and dredging operations.

C Information on **changes in living resources** including discussion of any increases or decreases in the abundance or distribution of species dependent on estuarine, near coastal, or Great Lakes waters; changes in species diversity over time; presence and extent of exotic or nuisance species; and changes in the amount of catch. Wherever possible, these changes should be discussed in terms of their causes (water quality versus changes in fishing regulations, overuse of resources, etc.).

EPA encourages States to include GIS and other maps illustrating the above information.

EPA and NOAA are paying special attention to coastal issues. Any data acquired through these agencies' coastal initiatives should be included in the assessment. Data of particular interest include data collected under the National Coastal Monitoring Act of 1992, which establishes the basis for a comprehensive national monitoring program for coastal ecosystems. In addition, the State should discuss its activities, if any, under EPA's Great Lakes Program, the National Estuary Program, the Near Coastal Water Pilot Projects, the Chesapeake Bay Program, the Gulf of Mexico Program, the Mid-Atlantic Bight and New York Bight programs and the CZARA Section 6217 nonpoint source control program. Any additional State programs, research activities, or new initiatives in estuarine or coastal waters or the Great Lakes should be discussed in this chapter. Information on coastal (tidal, estuarine) or Great Lakes wetlands should be reported in Chapter 7: Wetlands Assessment.

Chapter Seven: Wetlands Assessment

Protecting the quantity and quality of the Nation's wetland resources is a high priority at EPA, other Federal agencies, and many State and local

governments. The Administration Wetlands Plan calls for a no overall net loss in the short term and a net increase in the quantity and quality of our Nation's wetlands in the long term. Achieving this requires regulatory and nonregulatory programs and a partnership of Federal, State, and local governments and private citizens.

Wetlands, as waters of the United States, receive full protection under the Clean Water Act including water quality standards under Section 303 and monitoring under Section 305(b). At present, wetland monitoring programs are in their infancy (see 1994 *National Water Quality Inventory Report to Congress*) and no State is operating a statewide wetland monitoring program. For this reason, it is important that States in their 305(b) reports describe their efforts to build wetland monitoring programs or to integrate wetlands into existing surface water monitoring programs.

In addition, States should report on their efforts to achieve the no overall net loss goal for wetland function and acreage. Ideally, this report should serve as a planning/management tool to prioritize program work and areas needing information and technical assistance. States are encouraged to make recommendations to EPA on tools that are needed to make the Administration goals a reality. EPA requests that Tribes report on wetlands to the extent practicable.

Previously reported information should be updated where applicable. States should report on coastal (i.e., tidal, estuarine, or Great Lakes) wetlands in this section of their report rather than in Chapter 6 (Estuary and Coastal Assessment).

States that wish to do so may report separately on riparian areas that are not jurisdictional wetlands. Riparian areas are essential components of riverine ecosystems. In the western United States, wetlands are sparse and riparian habitat is often the only suitable habitat for many animals and plant species. Riparian areas are also important for their ability to remove pollutants.

Section 305(b) staff are encouraged to coordinate closely with other relevant State agencies such as fish and wildlife departments to respond to the reporting guidelines below. To the extent possible, States are encouraged to geographically or spatially represent the information (e.g., report information by watershed unit and include maps).

Development of Wetland Water Quality Standards

In July 1990, EPA published guidance on the level of achievement expected of States by the end of FY1993 in the development of wetland

water quality standards. Although most States have incorporated wetlands into their definition of State waters, currently only a few States have developed comprehensive wetland-specific standards. Water quality standards for wetlands are necessary to ensure that, under the provisions of the Clean Water Act, wetlands are afforded the same level of protection as other waters. Development of wetlands water quality standards provides a regulatory basis for a variety of water quality management activities including, but not limited to, monitoring and assessment under Section 305(b), permitting under Sections 402 and 404, water quality certification under Section 401, and control of nonpoint source pollution under Section 319. In the 1994 305(b) reports, almost all States reported on their efforts to develop wetlands water quality standards. To date, over 27 States have received wetland protection grants to develop wetland-specific water quality standards. By the end of FY99, EPA expects all States to designate specific beneficial uses and adopt narrative criteria for their wetlands.

Table 4-12 is a guide for presenting tabular information on development of State wetland water quality standards.

To supplement the information in Table 4-12, States should list designated uses for wetlands. In addition States should

- Briefly describe State efforts to develop narrative and numeric *biological criteria*. Provide examples where appropriate.

- Briefly describe classification of wetlands in your State *antidegradation policy*. Provide an example of how State antidegradation policies are used to protect critical wetlands.

Table 4-12. Development of State Wetland Water Quality Standards

	In Place	Under Development	Proposed
Use Classification			
Narrative Biocriteria			
Numeric Biocriteria			
Antidegradation			
Implementation Method			

NOTE: This table merely clarifies reporting requirements contained in earlier versions of this guidance. This table is not a new reporting requirement.

- Briefly describe efforts to *integrate wetland protection* through 401 certification and wetlands water quality standards *with the NPDES stormwater program*. Specifically, relate any criteria used in evaluating stormwater impacts to wetlands.

Integrity of Wetland Resources

The development of wetland biological assessment methods is a growing area of emphasis for EPA, States, and Tribes. Development of monitoring methods and initiation of pilot monitoring programs are among the priorities for the Wetlands Protection Grants Program.

States should discuss their efforts (including current research) to develop programs to monitor the biological, physical, and chemical integrity of wetlands and to integrate wetlands into existing surface water monitoring programs. States should include information on the scope and comprehensiveness of the program (e.g., geographic coverage), types of monitoring (e.g., biological, chemical, physical), and how use support decisions are made. States should also discuss efforts to conduct wetland functional assessments (e.g., Hydrogeomorphic Approach [HGM]).

EPA has recently established a workgroup of States, Federal agencies, and academics to improve wetland biological assessment methods and programs. Because of these partnerships, EPA has set a 1999 performance measure for the Government Performance and Results Act (GPRA) of 15 States/Tribes developing tools and programs to assess and monitor overall wetland improvement/deterioration. EPA encourages States to report on specific monitoring methods and criteria either already in effect or under development. Biological monitoring is critical for States to continue to refine their designated uses to more adequately reflect and protect existing wetland conditions.

EPA encourages States to report on the attainment of designated uses in their wetlands. To the extent possible, complete Tables 4-3, 4-4, and 4-5 (designated use support, causes/stressors and sources of impairment, including nonpoint sources) for wetlands and present in this chapter. Please note your State's methodology for evaluation (as they currently vary by State) including source of data (e.g., Section 404 permit information, onsite monitoring, or satellite or aerial photography interpretation). In their 1994 305(b) reports, 13 States reported on sources of wetland loss, 12 reported on causes and sources degrading wetlands, and 8 States reported on designated use support in some portion of their wetlands.

States should also report on wetland monitoring programs by volunteers and whether they are working to be able to use this information in the 305(b) report. Rhode Island Sea Grant and EPA jointly issued in January 1994 a national directory of volunteer monitoring programs, many of which have wetland components (Rhode Island Sea Grant, 1994). States can obtain a copy from the EPA Assessment and Watershed Protection Division, Monitoring Branch, (202) 260-7018. EPA is compiling an annotated bibliography of volunteer monitoring manuals which is available through our Web site at http://www.epa.gov/owow/wetlands.

Extent of Wetland Resources

States should describe any assessments of wetland acreage changes over time (by wetland type if that information is available). This description should include efforts to attain no overall net loss or target priority restoration sites (e.g., through tracking Section 401 certification of Section 404 permits; current or planned inventory programs such as U.S. Fish and Wildlife Service National Wetlands Inventory or State inventory programs; use of geographic information systems (GISs); or comparison of predevelopment inventories with more current wetland information). States are encouraged to provide information on wetland types and their historical, most recent, and second most recent acreages (specify when available). Table 4-13 is provided as a guide for formatting information; see also the example tables from Wisconsin's 1994 305(b) report in Appendix N of the *Guidelines Supplement*. Define wetland types using the Cowardin classification system currently the Federal standard for wetland classification (Cowardin et al., 1979; FWS/OBS-79/31). If another classification system is used, please identify the system. Also, list sources of information and discuss reasons for acreage change, where known. EPA encourages States to include maps of significant wetlands if this information is available and to describe current or planned inventory programs for their wetland resources.

Potential sources of information include the U.S. Fish and Wildlife Service National Wetlands Inventory, the State fish and game department, and the State parks and recreation agency (wetlands are to be included in State Outdoor Recreation Plans).

Additional Wetland Protection Activities

This section is designed to update readers on State wetland protection activities and provide States with an opportunity to exchange information on achievements and obstacles in protecting their wetland resources. Discussions need not be extensive or detailed but should:

Table 4-13. Extent of Wetlands, by Type

Wetland Type[a]	Historical Extent (acres)[1]	1996 Reported Acreage[2] (second most recent acreage)	Most Recent Acreage[3] (if any recorded)	% Change From 1996 to Most Recent

Sources of Information:

1 (include date of inventory)
2
3 (include date of inventory)

[a] Use Cowardin et al. (1979)--*Classification of Wetlands and Deepwater Habitats of the United States*, Fish and Wildlife Report FWS/OBS-79/31--or report classification system used.

- Describe efforts to **integrate wetlands into the watershed protection or basinwide approach**. Describe county-level programs to integrate wetlands into local planning.

- Briefly describe **particularly noteworthy State activities**, past and present, funded through the Section 104(b)(3) Wetland Grant Program.

- Briefly describe the most effective mechanism or innovative approach used in protecting wetlands (such as Outstanding Resource Waters, State Wetland Conservation Plan, watershed or local planning, State Program General Permits under Section 404, Section 401 certification and wetland water quality standards). Note if these are being partially supported by the 104(b)(3) State Wetland Grant Program.

- Briefly describe agency responsibilities for wetland protection and coordination between the water quality agency and other natural resource agencies.

Please discuss any challenges your State is facing in developing wetland monitoring programs and any recommendations you have for EPA.

Appendix N of the *Guidelines Supplement* includes wetland information from previous 305(b) reporting as an example for States to generate ideas for reporting on and developing wetland monitoring programs.

Chapter Eight: Public Health/Aquatic Life Concerns

In this chapter, States report on selected public health/aquatic life concerns. The 305(b) Consistency Workgroup recommended that Tables 4-14 through 4-18 in this chapter be optional for 1996 and beyond. Tables 4-14 and 4-16 are not useful for national compilations because this could lead to erroneous conclusions. For example, some States only store data for the last column of Table 4-14, which can lead to the appearance that a high percentage of monitored waters show elevated toxics. Fish kills (Table 4-16) are difficult for some State 305(b) programs to track, causes and sources of fishkills are often unknown, and summary statistics are not useful above the State level. Both of these tables may contain useful information for an individual State, however. For these reasons, these tables are optional for State 305(b) reporting. **EPA will not use fishkill data in the Report to Congress.**

Table 4-15 contains information that is available through other EPA national listings and therefore is optional for 305(b) reporting. EPA will use the national listings in preparing the 305(b) Reports to Congress. Nonetheless, a State may choose to include its own information for the public's benefit and to supplement national data.

EPA will provide its national listings to States to support the preparation of Table 4-17; however, this table is optional for 305(b). Table 4-18 is optional because EPA will obtain summary data for the Report to Congress from NOAA. States are asked to provide Table 4-19 because it contains important information not available elsewhere.

Size of Waters Affected by Toxicants

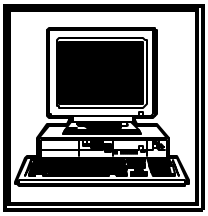
Using the format in Table 4-14, States may take the option to report on the extent of toxicant-caused problems in each waterbody type. *However, EPA will not use this data in the Report to Congress.* WBS can generate the totals needed for this table from waterbody-specific information. Each State defines "elevated levels of toxicants," which can include exceedances of numeric State water quality standards, 304(a) criteria, and/or Food and Drug Administration (FDA) action levels or levels

of concern (where numeric criteria do not exist). Elevated levels of toxicants may occur in the water

Table 4-14. Total Size Affected by Toxicants (optional)

Waterbody	Size Monitored for Toxicants	Size with Elevated Levels of Toxicants
Rivers (miles)		
Lakes (acres)		
Estuaries (miles^2)		
Coastal waters (miles)		
Great Lakes (miles)		
Freshwater wetlands (acres)		
Tidal wetlands (acres)		

Note: Optional—States may choose to present this table for use at the State level, but EPA will not aggregate this information to the national level in the Report to Congress.



WBS Users--To generate the totals needed for Table 4-14 from the WBS, the Monitored for Toxics field in WBS must be entered as "yes" for each appropriate waterbody.

Totals for the last column in Table 4-14 can be generated from waterbody-specific information in the WBS if total size affected by toxicants is stored for each waterbody using Cause Code 2400 ("Total Toxicants"). For example, assume a waterbody is 10 miles in size, with 4 miles impacted by metals and 3 miles impacted by pesticides. However, the total portion of the waterbody that is impacted by toxicants may be only 5 miles (because some miles have both metals and pesticides). In WBS, 5 miles must be entered under Code 2400: Total Toxicants for WBS to accurately calculate Statewide Summaries for Table 4-14:

Code 2400: **Total Toxicants** 5 miles (must enter in WBS even if 0200, 0500 entered also)
Code 0200: Pesticides 3 miles
Code 0500: Metals 4 miles

Refer also to the *WBS Users Guide.*

Any of the following codes can be considered toxicants: 0200 (pesticides), 0300 (priority organics), 0500 (metals), 0600 (ammonia, un-ionized), and 0700 (chlorine).

column, in fish tissue, or in sediments. As a means of providing perspective, States should discuss which toxic pollutants have been monitored for and include a list of those toxic pollutants for which the State has adopted numeric criteria.

Public Health/Aquatic Life Impacts

EPA has developed a Listing of Fish and Wildlife Consumption Advisories to encourage information exchange among (and within) States. For 1997, EPA and the States are updating the Listing to include all known advisories as of December 1996. EPA will provide the Listing to State 305(b) Coordinators in 1997. The Listing program includes electronic mapping capabilities. Annual updates are planned. Contact the EPA Office of Science and Technology (OST) at (202) 260-1305 for more information.

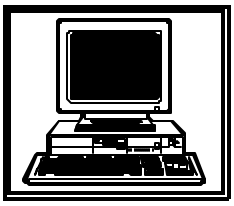
EPA has also developed a national database of sediment contamination by toxics, the National Sediment Inventory. EPA will also provide this listing to 305(b) Coordinators for use in preparing Table 4-17. A summary report is currently under review (EPA-823-D-96-003). Contact EPA/OST at (202) 260-5388 for more information.

EPA will obtain information on fish consumption advisories and sediment contamination from EPA's national databases. EPA will then provide the results to the States approximately six months prior to the due date for the State 305(b) reports. States may choose to provide their own listings of fish consumption advisories and sediment-contaminated waters if they are concerned that the national-level data may not be sufficiently current or accurate.

If the State 305(b) agency collects the following types of information for management purposes, reporting it in the 305(b) report will enhance the value of the report to the public and EPA. Note that several of the following types of information are optional for State 305(b) reports because EPA will obtain data from other sources (see Tables 4-15 through 4-19)

- **Fishing or shellfishing advisories** currently in effect
- **Pollution-caused fish kills/abnormalities**; States may choose to distinguish recurring fish kills from other pollution-caused fish kills occurring during the reporting period (clearly identify approach used)
- **Sites of known sediment contamination**

- **Shellfish restrictions/closures** currently in effect
- **Restrictions on surface drinking water supplies** (see next section)
- **Restrictions on bathing areas** during this reporting cycle
- **Incidents of waterborne disease** during this reporting cycle
- **Other aquatic life impacts** of pollutants and stressors (e.g., reproductive interference, threatened or endangered species impacts).



WBS Users—WBS offers two options for preparing Tables 4-15 through 4-19. First, WBS contains a stand-alone module that exists mainly to prepare these particular tables. Second, WBS also contains Aquatic Contamination Codes in the main WBS assessment screens that users may assign to a waterbody. By entering these codes, WBS users can perform a wide variety of queries and generate lists of waterbodies that can be used to prepare Tables 4-15 through 4-19. The WBS Aquatic Contamination Codes are:

1 = Fish/shellfish tissue contamination above FDA/NAS/levels of concern
2 = Fish/shellfish advisory in effect
  2a = Restricted consumption advisory for subpopulation
  2b = Restricted consumption advisory, general population
  2c = "No consumption" advisory for a subpopulation
  2d = "No consumption" advisory or ban, general population
  2e = Commercial fishing ban
3 = Bathing area closure, occurred during reporting period
4 = Pollution-related fish abnormality observed during reporting period
5 = Shellfish advisory due to pathogens, currently in effect
6 = Pollution-caused fish kill, occurred during reporting period
7 = Sediment contamination
8 = Surface drinking water supply closure, occurred during reporting period
9 = Surface drinking water supply advisory, occurred during reporting period
10 = Waterborne disease incident, occurred during reporting period.

See the *WBS User's Guide* or contact WBS User Support (page ii) for more information.

Table 4-15. Waterbodies Affected by Fish and Shellfish[a] Consumption Restrictions Due To Toxicants (optional[b])

Name of Waterbody and Identification No. or Reach No.	Waterbody Type	Size Affected	Type of Fishing Restriction				Cause(s) (Pollutant[s]) of Concern[b]
			No Consumption		Limited Consumption		
			General Population	Sub-population	General Population	Sub-Population	

[a] Does not include shellfish harvesting restrictions due to pathogens. See Table 4-18.

[b] Optional because much of this information is available in EPA's Listing of Fish and Wildlife Consumption Advisories, which is available to 305(b) Coordinators; contact EPA/OST at (202) 260-1305. Optional because EPA will use the Listing in the Report to Congress, not this table.

Table 4-16. Waterbodies Affected by Fish Kills and Fish Abnormalities (optional[a])

Name of Waterbody and Identification No. or Reach No.	Waterbody Type	Size Affected	Cause(s) (Pollutant[s]) of Concern	Source(s) of Pollutant(s)	Number of Fish Killed	Number of Fish with Abnormalities

[a] Optional because some States do not compile this information and summary statistics are not useful above the State level. States may choose to present this table for use at the State level, but EPA will not aggregate this information to
the national level in the Report to Congress.

Table 4-17. Waterbodies Affected by Sediment Contamination[a] (optional)

Name of Waterbody and Identification No. or Reach No.	Waterbody Type	Size Affected	Causes(s) (Pollutant[s]) of Concern	Source(s) of Pollutant(s)

Note: EPA's National Sediment Inventory contains supporting information for this table. Inventory results are available to 305(b) Coordinators; contact EPA/OST at (202) 260-5388. Optional because EPA will use the National Sediment Inventory in the Report to Congress, not this table.

Table 4-18. Waterbodies Affected by Shellfish Advisories due to Pathogens (optional)

Name of Waterbody and Identification No. or Reach No.	Waterbody Type	Size Affected	Sources of Pathogens and/or Indicators[a]

[a] Indicators include, but are not limited to, fecal coliforms and *E. coli*
Optional because EPA will use data from NOAA's National Shellfish Sanitation Program in the Report to Congress.

Table 4-19. Waterbodies Affected by Bathing Area Closures

Name of waterbody and Identification No. or Reach No.	Waterbody Type	Size Affected	Cause(s) (Pollutant[s]) of Concern[a]	Source(s) of Pollutant(s)	Comments (Chronic or One-time Event)	Month/Year of Closure

[a] Pollutants include, but are not limited to, medical waste, fecal coliforms, *E. coli*, enterococci, and other indicators of pathogenic contamination.

Public Water Supply/Drinking Water Use Reporting

One of the findings of the last two 305(b) reporting cycles is the relatively low percentage of waters that have been assessed for drinking water designated use nationwide. EPA strongly encourages States to focus resources on increasing the percentage of waters assessed for this use and at the same time enhancing the accuracy and usefulness of these assessments. This goal is consistent with EPA's source water protection initiative under the 1996 Amendments to the Safe Drinking Water Act. States are encouraged to use source water assessments to delineate watershed areas (source water protection areas) for all public water systems and thereby increase the assessment of source waters for drinking water use. The States also are encouraged to use this information from the source water assessments in their 305(b) reports.

EPA and the 305(b) Drinking Water Focus Group (DWFG) developed Tables 4-20 through 4-22 for reporting information related to drinking water use support. States are requested to complete these tables to provide statewide estimates of the total waterbody areas that support drinking water use, are fully supporting but threatened for drinking water use, partially support drinking water use, do not support drinking water use, and are unassessed.

EPA asks that States be aware of the potential to overstate the degree to which source waters support drinking water use. Caution should be taken in assuming that a waterbody is fully supporting drinking water use due to the absence of an MCL violation. Furthermore, a source water should not be characterized as meeting drinking water use if that water has never been assessed. Both of these circumstances are misleading and overstate the degree to which source waters support drinking water use.

For source waters that are characterized as “fully supporting,” EPA and the DWFG encourage States to specify the contaminants or groups of contaminants evaluated during the assessment. A list of the contaminants used in the assessment should be included in the 305(b) report.

For source waters that are characterized as “threatened,” “partially supporting,” or “nonsupporting,” States are encouraged to specify the contaminants or groups of contaminants causing the impairment (e.g.,

source water quality is characterized as "partially supporting" drinking water use due to the detection of agricultural chemicals). EPA acknowledges that specifying the specific contaminants causing an impairment may be burdensome to many States; however, States are still encouraged to provide this information as it will enable EPA to more accurately assess national water quality and potential threats. EPA and the DWFG developed Table 7-20 to assist States in reporting this information.

States are asked to use Table 4-20 to list the waterbodies assessed for drinking water designated use support. For each of the assessed waterbodies, States are asked to specify the contaminants included in the assessment. A brief discussion of the rationale used to finalize the list of contaminants along with some qualification as to why certain other contaminants were not used in the assessment should also be included in the 305(b) report.

To give perspective to the tabulated data reported by States in their 305(b) Reports, the DWFG requested that several short narratives be provided in the reports. Following is a brief summary of these narratives:

- the methodology used to perform the assessment(s),
- the level of detail incorporated into each assessment, and
- the rationale used to select and finalize the list of contaminants used in the assessment(s).

States are asked to use Tables 4-21 and 4-22 to indicate the total miles of rivers and streams and acres of lakes and reservoirs designated for drinking water use. For the miles and/or acres of water designated for drinking water use, States are asked to indicate the total areas that have been assessed. For these assessed areas, States are requested to use Tables 4-21 and 4-22 to report the miles and/or acres categorized according to each of the use support classifications and to calculate the percentage of waters in each category. Most of this information can be derived from Table 4-3 (Individual Use Support Summary). The primary difference between Tables 4-21 and 4-22 and Table 4-3 is that States are asked to list the major contaminants contributing to impairment in Tables 4-21 and 4-22. For waterbodies that are categorized as "fully supporting," States should list all the contaminants considered in the assessment.

If States choose to use public water supply compliance monitoring data in these assessments, it is important to recognize that these data are collected and managed by State agencies having authority under the Safe Drinking Water Act. The use of these data in assessing source waters for drinking water use support within the 305(b) program necessitates communication and cooperation across State agency boundaries. EPA and the DWFG recognize and acknowledge the difficulties inherent in obtaining and using these data without the benefit of the drinking water staff's experience and expertise. EPA and the DWFG recommend that State 305(b) Coordinators facilitate a working relationship between the State drinking water and Clean Water Act program staff to provide the most accurate and representative assessment of source waters based on finished water quality data.

Table 4-20. Summary of Contaminants Used in the Assessment

Rivers and Streams (List Waterbodies)	Contaminants Included in the Assessment[a]	Lakes and Reservoirs (List Waterbodies)	Contaminants Included in the Assessment[a]

[a]Contaminants may be either listed individually, or reported as contaminant groups (e.g., pesticides, metals, semivolatile organic compounds, etc.)

Table 4-21. Summary of Drinking Water Use Assessments for Rivers and Streams

Total Miles Designated for Drinking Water Use _____				
Total Miles Assessed for Drinking Water Use _____				
Miles Fully Supporting Drinking Water Use		**% Fully Supporting Drinking Water Use**		**Contaminants**
Miles Fully Supporting but Threatened For Drinking Water Use		**% Fully Supporting but Threatened for Drinking Water Use**		
Miles Partially Supporting Drinking Water Use		**% Partially Supporting Drinking Water Use**		
Miles Not Supporting Drinking Water Use		**% Not Supporting Drinking Water Use**		

Table 4-22. Summary of Drinking Water Use Assessments for Lakes and Reservoirs

Total Waterbody Area Designated for Drinking Water Use _____				
Total Waterbody Area Assessed for Drinking Water Use _____				
Acres Fully Supporting Drinking Water Use		**% Fully Supporting Drinking Water Use**		**Contaminants**
Acres Fully Supporting but Threatened For Drinking Water Use		**% Fully Supporting but Threatened for Drinking Water Use**		
Acres Partially Supporting Drinking Water Use		**% Partially Supporting Drinking Water Use**		
Acres Not Supporting Drinking Water Use		**% Not Supporting Drinking Water Use**		

Table 4-3. Individual Use Support Summary

Type of Waterbody: Rivers and Streams

Goals[a]	Use	Size Assessed	Size Fully Supporting	Size Fully Supporting but Threatened	Size Partially Supporting	Size Not Supporting	Size Not Attainable
Protect & Enhance Ecosystems	Aquatic Life						
	State Defined 1. 2.						
Protect & Enhance Public Health	Fish Consumption						
	Shellfishing						
	Swimming						
	Secondary Contact						
	Drinking Water[b]						
	State Defined 1. 2.						
Social and Economic	Agricultural						
	Cultural or Ceremonial						
	State Defined 1. 2.						

[a] These goals are part of the national water quality goals adopted by the EPA Office of Water and the ITFM in their Environmental Goals and Indicators effort.

[b] Drinking water use support is also summarized in greater detail in Tables 4-20 and 4-22.

In order for EPA to summarize data from over 56 305(b) reports, please leave no blanks in this table. Instead use the following conventions:

asterisk (*) = category not applicable
dash (-) = category applicable no data available
zero (0) = category applicable, but size of waters in the category is zero.